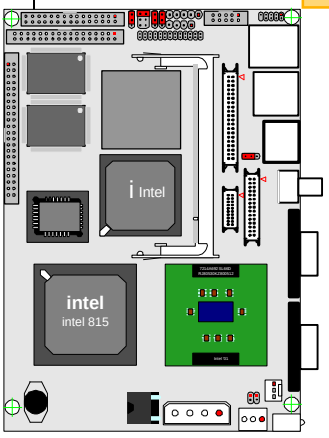
EmCORE-i612VLS/C400

User's Manual



3.5" Intel Ultra-low Voltage Celeron or Low Voltage PIII Embeded Single Board Computer with CRT/ LCD, 4 serial ports , single Intel 82562ET Fast Ethernet, AC97 3D Audio, Mini space PCI , Compact

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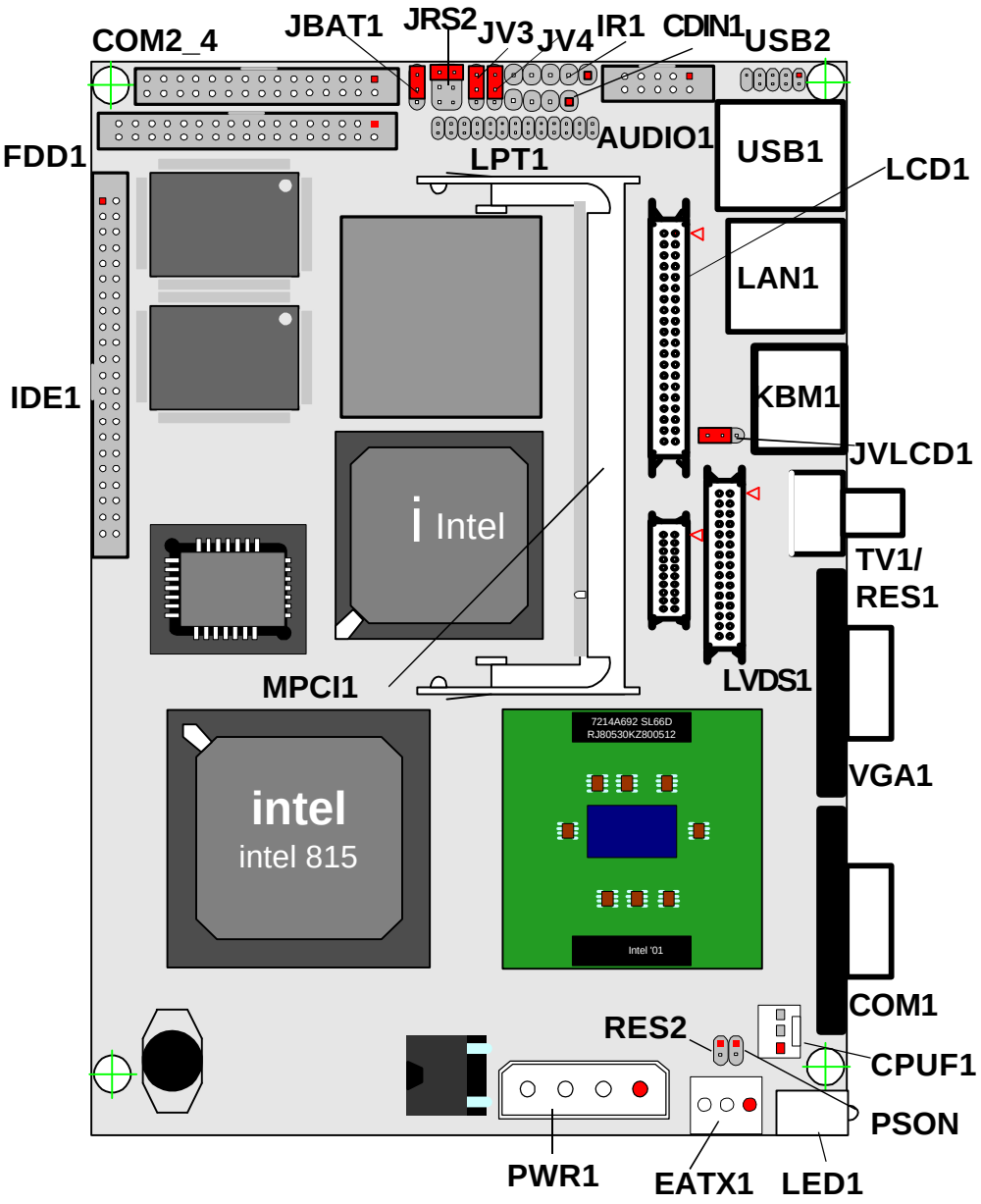
Specifications

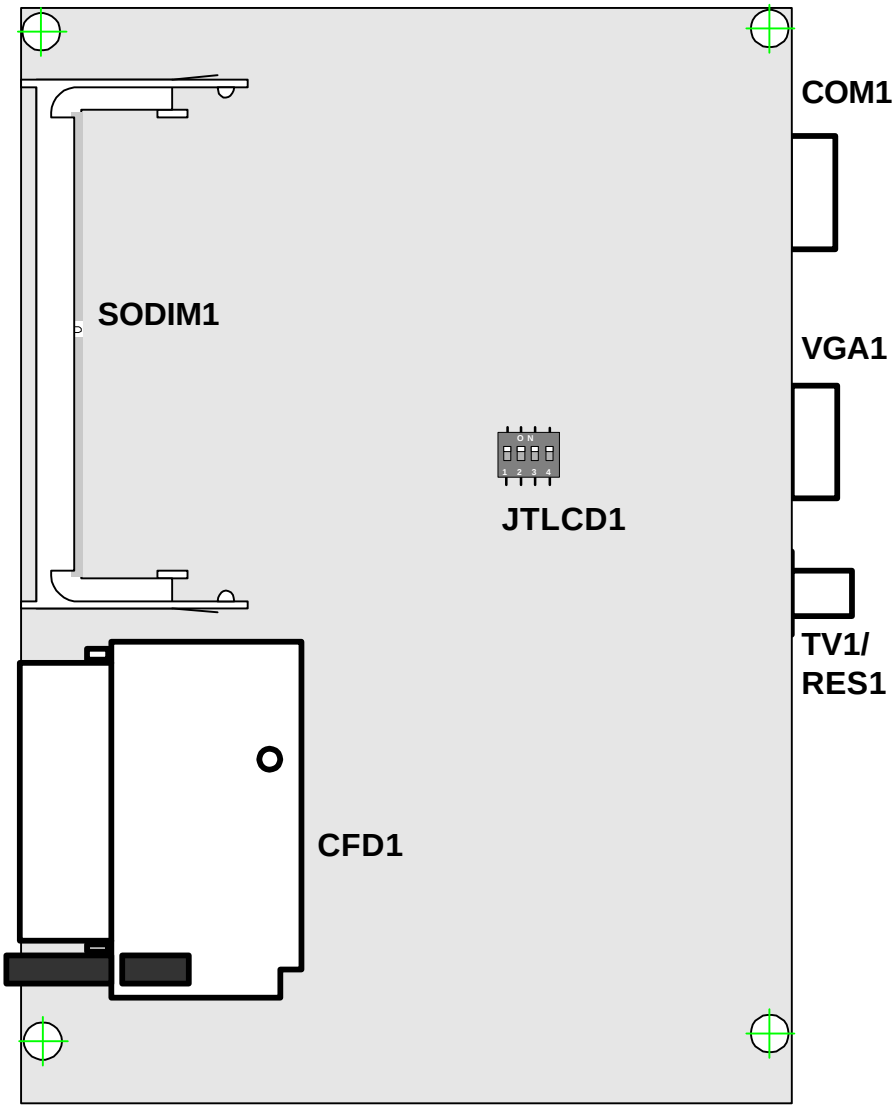
Item	Specification
CPU (Option)	Ultra Low Voltage Intel(R) Celeron(R) Processor 400MHz (FSB 100MHz), EBGA (mounted)
Cache	Built in CPU
Processor socket	None
Memory (Option)	One 144-pin SO-DIMM socket, PC100 SDRAM for up to 512MB
Chipset	Intel(R) 815E + ICH2
BIOS	Award BIOS
VGA	Lynx SM722 (VRAM 8M), Dual View *1 Analog RGB I/F x 1 (15-pin HD-SUB connector x 1), LVDS(18/24bit) I/F x 1 (30 pin-box header connector x 1), LCD(18/24bit) I/F x 1 (40 pin-box header connector x 1), TV-out(NTSC/PAL) x 1 (Composite video terminal x 1)
Keyboard/Mouse connector	One PS/2 Keyboard/Mouse connector (Bundled the 2 in 1 mini-DIN)
Serial I/F	Four 16550 UART ports COM1, COM3, COM4 are RS-232C COM2 is RS-232C/422A/485(jumper selectable) One 9-pin D-SUB connector, One 30 pin-header connector
Parallel I/F	One high-speed parallel port, support SPP/EPP/ECP mode, One 26 pin-header connector
On board expansion bus	One Mini PCI socket (Type III)
LAN Port	100BASE-TX/10BASE-T, Intel ICH2 integrated controller One RJ-45 connector
IDE I/F	One EIDE port, up to two IDE devices, support Ultra DMA33
SATA I/F	None
FDD I/F	3.5 inch 2mode I/F, one box-header 34-pin connector
Compact Flash Slot	Type I /II x 1, Support booting
SSD Socket	None
USB Port	4ch USB 1.1 complaint ports, Two USB A TYPE connector, One 10 pin-header connector
IrDA	IrDA 1.1 complaint port, One 5 pin-header connector
RAID	None
Audio	AC97 CODEC, One box-header 10-pin connector for speaker out, line in, CD Audio in, microphone in.
Watchdog Timer	Software programmable 255 levels (1 - 255sec). Reset occurrence at the time of time up.
General-purpose I/F	None
Hardware Monitor	Monitoring of the temperature of CPU, power supply voltage
RTC/CMOS	The backup time of the Lithium battery is over 7 years at 25°C. The clock is accurate ±3 minutes/month at 25°C.
Power Management	Power management setup via BIOS
Bus specification / Size (mm)	None / 145(L) x 102(H)
DC Power Requirements	+5VDC ±5% +12VDC ±5%
Power supply specifications (Max.)	+5VDC 3.8A +12VDC 0.51A
Operating temperature / Operating Humidity	0 - 60°C /10 - 90%RH (No condensation)
Storage temperature	-20 - 80°C
Floating dust particles	Not to be excessive
Corrosive gases	None
Weight	175g
Operating System Support	Windows XP Professional Windows 2000 Professional

*1 Capable of two screen display with one of the combination, analog RGB & LVDS and analog RGB & LCD.

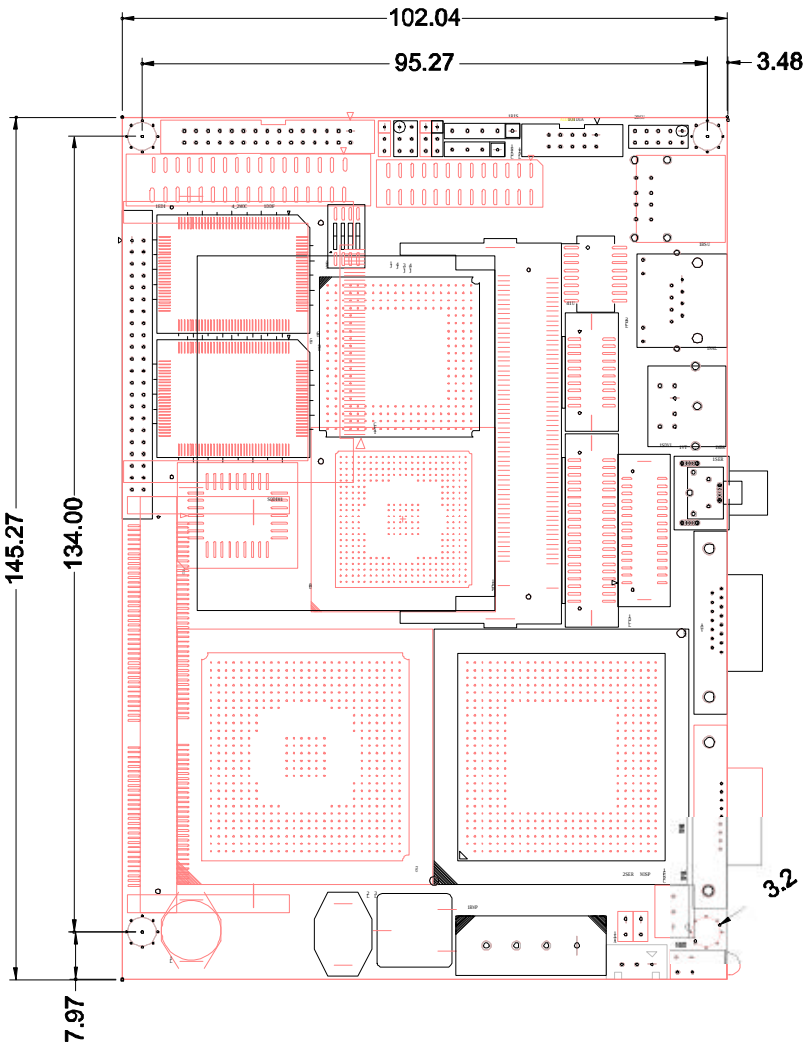
Board Layout Fornt Side



Board Layout Rear Side



Board Dimension



Unit: mm

Jumper/Connector Quick Reference

Jumpers

Label	Function
JBAT1	Clear CMOS
JRS2	COM2 RS-232C / 422A / 485 Selection
JV3~4	COM2 Power Source Special Support
JVLCD1	LVDS Voltage selection

Jumper/Connector Quick Reference

Connectors	
Label	Function
EATX1	ATX Feature Connector
AUDIO1	Audio Interface Port
CDIN1	CDROM Audio Interface
CFD1	Compact Flash Connector (rear side)
COM1	RS-232 Serial Port 1
COM2_4	Serial Port COM2 ~ COM4
CPUF1	CPU FAN1 Connector
FDD1	Floppy Disk Driver Connector
IDE1	Primary IDE Connector
KBM1	PS/2 Keyboard and Mouse
LAN1	10/100M LAN1 Connector
LCD1	18bit/24bit TTL Flat Panel Connector (DF 13 40Pin)
LVDS1	24bit LVDS Panel Connetor (DF 13 30Pin)
LED1	POWER/HDD LED
LPT1	Parallel Port
MPCI1	Mini PCI TYPE III Connector
PSON1	ATX Soft Power Switch
PWR1	4P Power Connector
RES1	Reset push button(same position as TV1, EmCORE-i612VLS including)
RES2	Reset Connector
IR1	Infrared (IR) Connector
SODIMM1	SDRAM Socket 1/2 144-pin (rear side)
JTLCD1	LCD Panel Type Selection
TV1	TV-OUT Connector
USB1	USB Port 0,1
USB2	USB Port 2,3
VGA1	CRT SVGA Connector

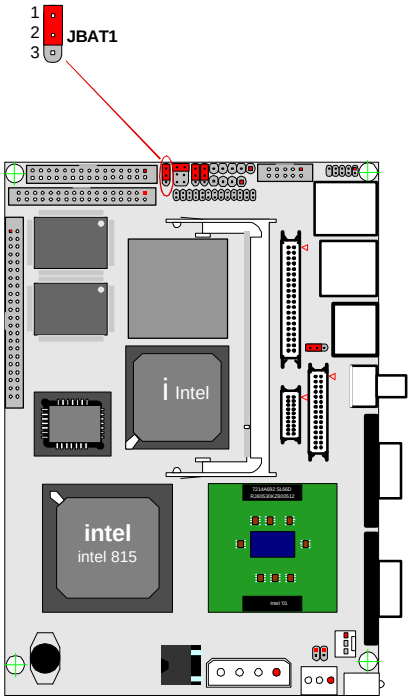
CMOS Jumper Settings

CMOS Operation (JBAT1)

Type : JBAT1: onboard 3-pin header

If the EmCORE-i612VLS/C400 refuses to boot due to inappropriate CMOS settings here is how to proceed to clear (reset) the CMOS to its default values.

CMOS Setup (JBAT1)	JBAT1	Status
Normal Operation	1-2	ON
Clear CMOS	2-3	ON
default setting 1-2 ON		



Serial Port Selection (RS232C/422A/485)

RS-422A/485 Mode on COM2

Type : JRS2: onboard 6-pin(2*3) header

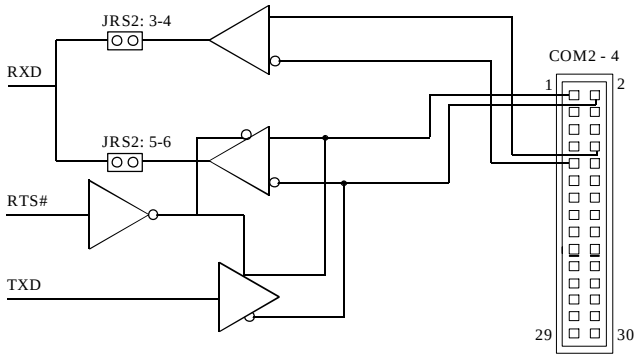
JRS2 Selection	1-2	3-4	5-6
RS-232C	ON	OFF	OFF
RS-422A	OFF	ON	OFF
RS-485	OFF	OFF	ON

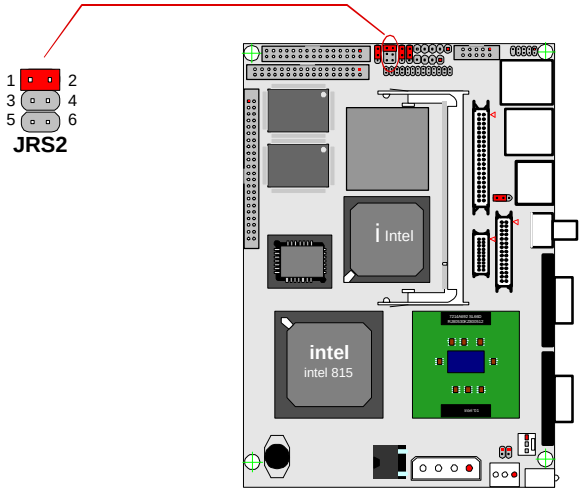
default setting RS-232C

The onboard COM2 port can be configured to operate in RS-422A or RS-485 modes. RS-422A modes differ in the way RX/TX is being handled. Jumper JRS2 switches between RS-232C or RS-422A/485 mode. All of the RS-232C/422A/485 modes are available on COM2.

COM2

Pin:	RS-232C	RS-422A	RS-485
1 :	DCD	Tx+	data+
2 :	RXD	Tx-	data-
8 :	CTS	Rx+	x
9 :	RI	Rx-	x




1 2
3 4
5 6
JRS2
intel
intel 815

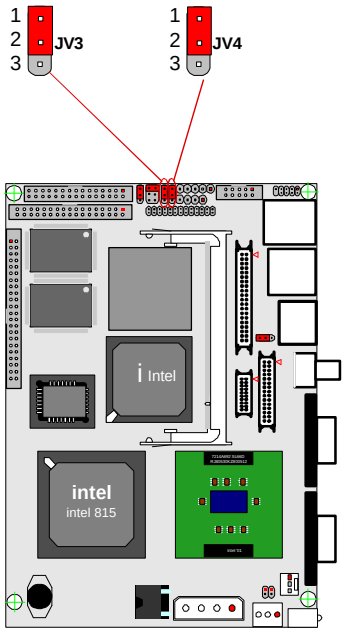
COM2 Power Source Special Support

COM2 Power Source Select : JV3~JV4

Type : JV3~JV4: onboard 3-pin header

It could be selected by JV3 and JV4 for that system provides power source +5V and +12V from COM2 .

Mode	JV3	JV4
Standard	1-2	1-2
12V on Pin9	2-3	1-2
5V on Pin1	1-2	2-3
5V on Pin1 ,12V on Pin9	2-3	2-3
default setting	Standard	



Compact Flash Disk

The interface of Compact Flash socket is designated to use IDE2.

Attention!

Installation Instructions

Compact Flash card is "**NOT HOT-SWAPPABLE**". If the CF card is swapped in the condition of system power-on, it will damage the CF card.

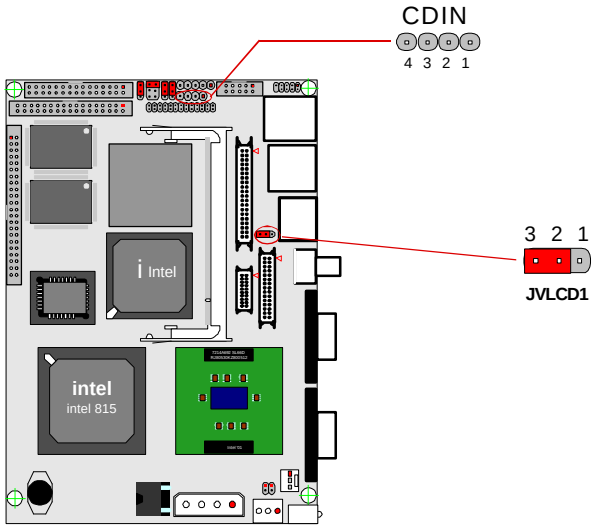
1. Make sure the Single Board Computer is powered OFF.
2. Plug the Compact Flash TypeI/II device into its socket. Verify the direction is correct on Secondary IDE which is located in the **back** of SBC.
3. Powre up the system

LVDS Panel Voltage Selection

Jumper : **JVLCD1**
Type : onboard 4-port mini switch

The EmCORE-i612VLS/C400 panel could be selected by JLCD1 in 5V or 3.3V.

JLCD1	Mode
1-2	+5V
2-3	+3.3V
Default setting	+3.3V



CDIN Connector

Connector : **CDIN1**

Type : onboard 4-pin header

Pin	Description	Pin	Description
1	CD Left	2	GND
3	GND	4	CD Right

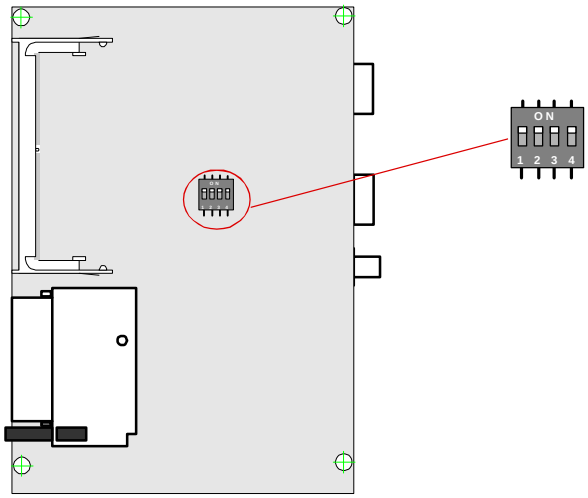
Flat Panel Configuration

Flat Panel Type Switch (JTLCD1)

The EmCORE-i612VLS/C400 provides a hardware switch to configure your onboard VGA controller for usage with a variety of flat panel types.

Switch : **JTLCD1**
Type : onboard 4-port mini switch

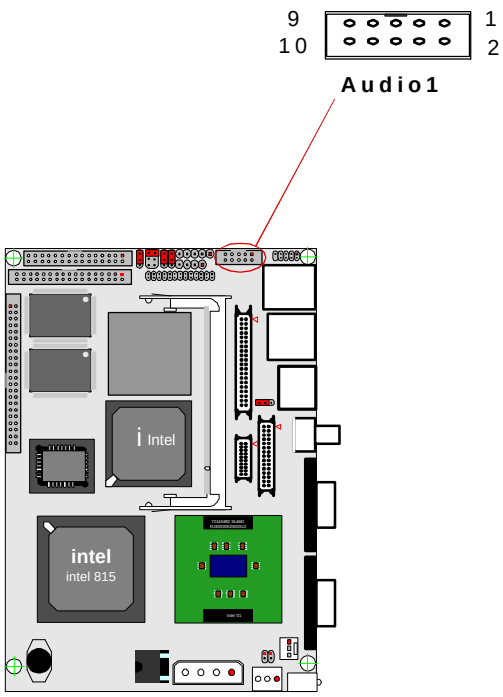
Panel Type	SW-1	SW-2	SW-3	SW-4
640 x 480 TFT	ON	ON	ON	ON
640 x 480 DSTN	OFF	ON	ON	ON
800 x 600 TFT (Default)	ON	OFF	ON	ON
800 x 600 DSTN	OFF	OFF	ON	ON
1024 x 768 TFT	ON	ON	OFF	ON
1024 x 768 DSTN	OFF	ON	OFF	ON
1280 x 1024 TFT	ON	OFF	OFF	ON



Audio Interface

Connector : **Audio1**
Type : Onboard 10-pin header

Pin	Description	Pin	Description
1	LINE IN LEFT	2	LINE IN RIGHT
3	GND	4	GND
5	MIC	6	NC
7	GND	8	GND
9	SPEAKER LEFT	10	SPEAKER RIGHT



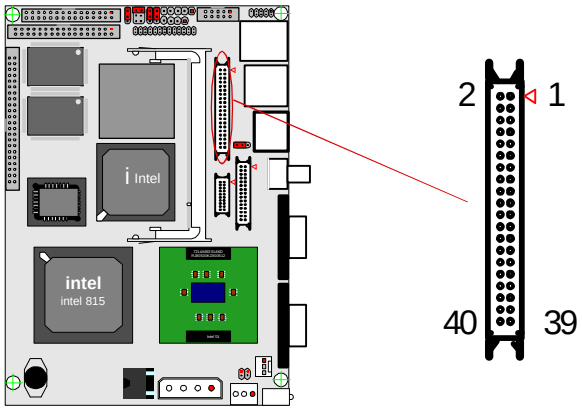
Flat Panel VGA

Flat Panel VGA (LCD) : LCD1

Connector : **LCD1**
Type : DF13 40-pin

LCD1:18bit/24bit TTL Flat Panel Connector

Pin	Description	Pin	Description
1	+5V	2	+5V
3	GND	4	GND
5	+3.3V	6	+3.3V
7	N/C	8	GND
9	FPD0(B0)	10	FPD1(B1)
11	FPD2(B2)	12	FPD3(B3)
13	FPD4(B4)	14	FPD5(B5)
15	FPD6(B6)	16	FPD7(B7)
17	FPD8(G0)	18	FPD9(G1)
19	FPD10(G2)	20	FPD11(G3)
21	FPD12(G4)	22	FPD13(G5)
23	FPD14(G6)	24	FPD15(G7)
25	FPD16(R0)	26	FPD17(R1)
27	FPD18(R2)	28	FPD19(R3)
29	FPD20(R4)	30	FPD21(R5)
31	FPD22(R6)	32	FPD23(R7)
33	GND	34	GND
35	SHFCLK	36	FLM
37	M/DE	38	LP
39	GND	40	ENABLK

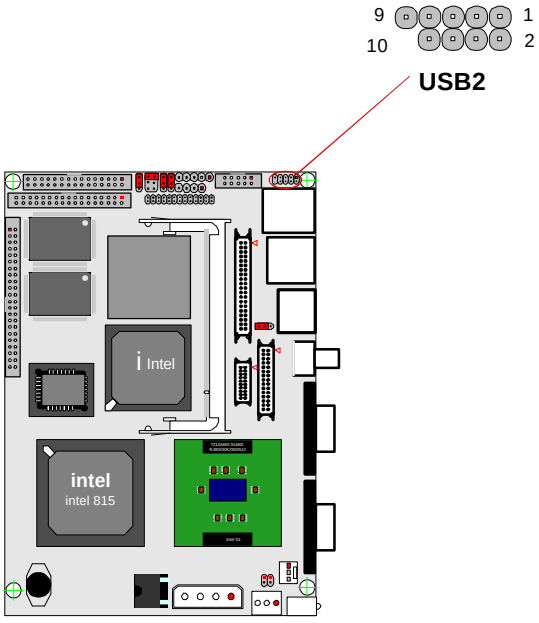


USB Connector

Connector : **USB2**

Type:onboard Two 10-pin pin headers

Pin	Description	Pin	Description
1	+5V	2	+5V
3	USBD0-	4	USBD1-
5	USBD0+6	USBD1+	
7	GND	8	GND
9	GND	10	NC

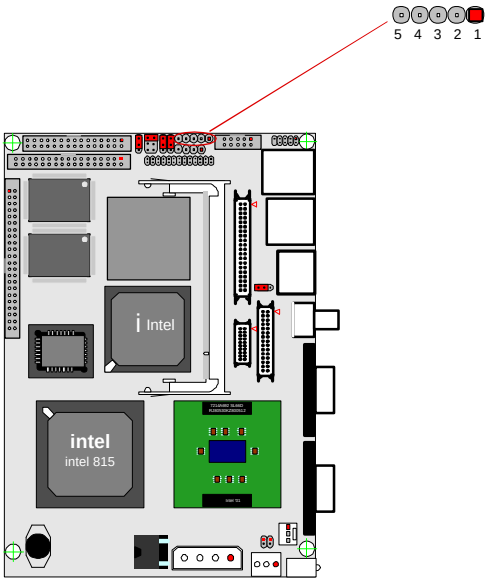


Infrared (IR)

Connector : **IR1**

Type : onboard 5-pin header

Pin	Description	Pin	Description
1	+5V	2	NC
3	IRRX	5	GND
5	IRTX		



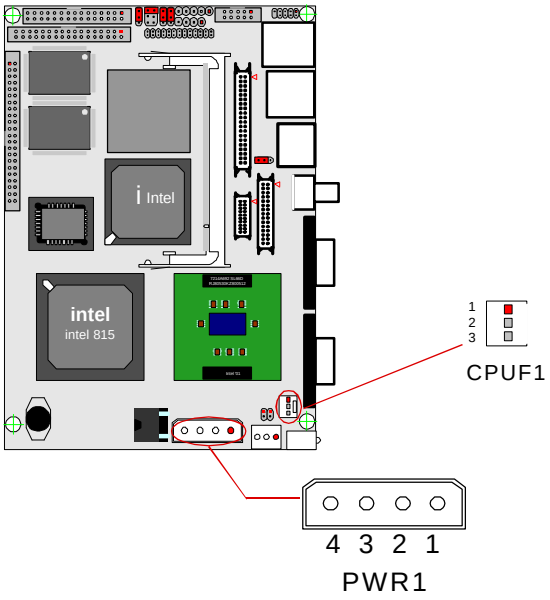
Power Connector

Power Connector : PWR1

Connector : **PWR1**

Type : PWR1: onboard 4P connector

Pin	Description	Pin	Description
1	+12V	2	GND
3	GND	4	+5V



CPU Fan

CPU Fan Connector : CPUF1

Connector : **CPUF1**

Type : CPUF1: onboard 3-pin connector

Pin	Description	Pin	Description
1	FAN_DEC	2	+5V
3	GND		

ATX Soft Power Switch

Connector : **PSON1**

Type : PSON: Power button connector for ATX

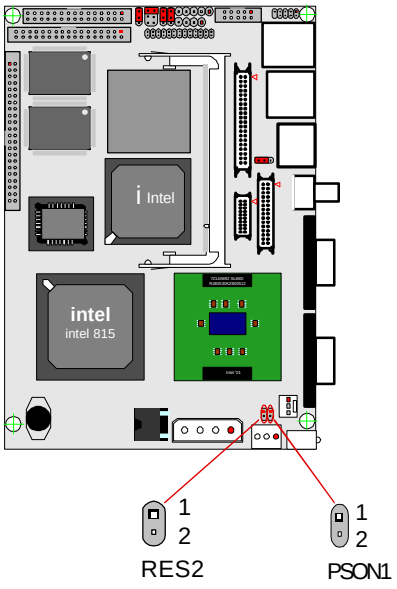
Pin	Description	Pin	Description
1	5VSB	2	PWR_BTN

Reset Connector

Connector : **RES2**

Type : RES2: reset switch connector for reboot

Pin	Description	Pin	Description
1	Reset	2	GND



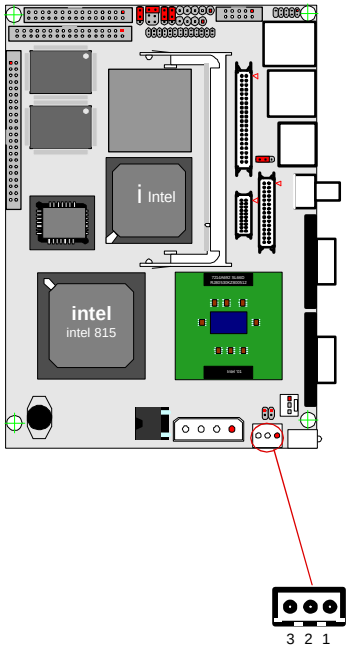
ATX Feature Connector

ATX Feature Connector : EATX1

Connector :**EATX1**

Type : EATX1: onboard 3-pin connector

	Pin	Description	Pin	Description
	1	PS_ON	2	GND
	3	+5VSB		

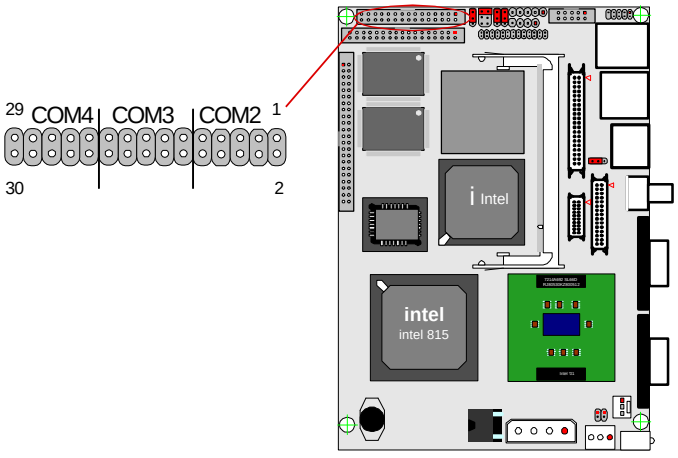


COM2/COM3/COM4 Connector

Connector : **COM2_4**

Type : onboard 30-pin connector

	Pin	Description	Pin	Description
COM2	1	DCD2 (RS-422A TXD+ / RS-485 DATA+)	2	RXD2 (RS-422A TXD- / RS-485 DATA-)
	3	TXD2	4	DTR2
	5	GND	6	DSR2
	7	RTS2	8	CTS2 (RS-422A RXD+)
	9	RI (RS-422A RXD-)	10	N.C.
COM3	11	DCD3	12	RXD3
	13	TXD3	14	DTR3
	15	GND	16	DSR3
	17	RTS3	18	CTS3
	19	RI3	20	N.C.
COM4	21	DCD4	22	RXD4
	23	TXD4	24	DTR4
	25	GND	26	DSR4
	27	RTS4	28	CTS4
	29	RI4	30	N.C.



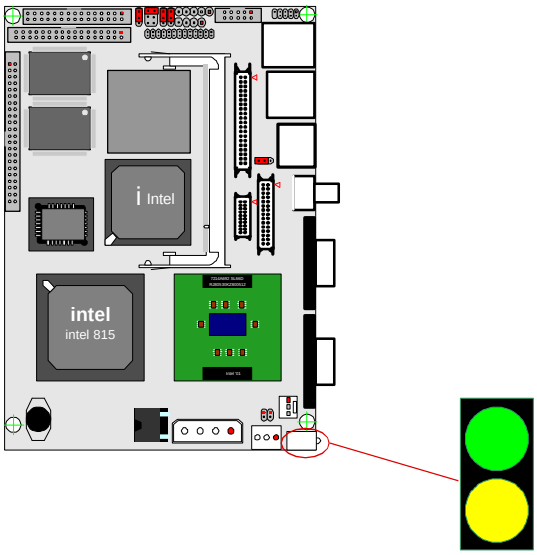
LED Indicator

Connector : **LED1**

LED	Description	Status
Power	Power On/Standby	Green
HDD	Hard Disk	Yellow

LED status description

Power Type	**AT Power**	**ATX Power**
Power On	On	On
Power Suspend	Fast Glittering	Fast Glittering
Power Off	Off	Slow Glittering



LAN Connector

LAN Port

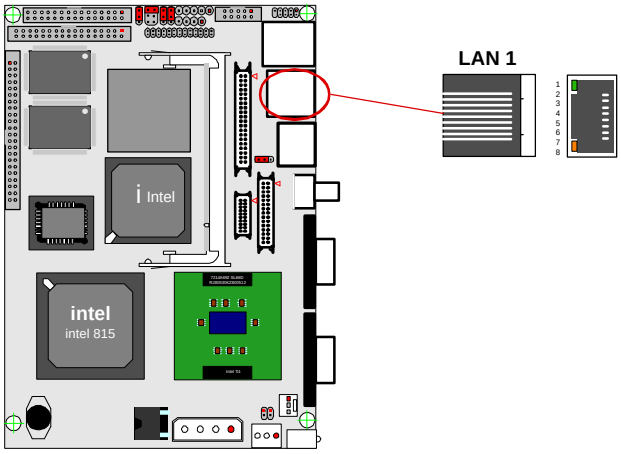
Connector : **LAN1(10/100Mbps)**
Type : external RJ-45 on bracket

Pin	1	2	3	4	5	6	7	8
Desciption	TX+	TX-	RX+	NC	NC	RX-	NC	NC

LAN LED Indicator on RJ-45 connector

Indicator : **LED**
Type : 2 LED

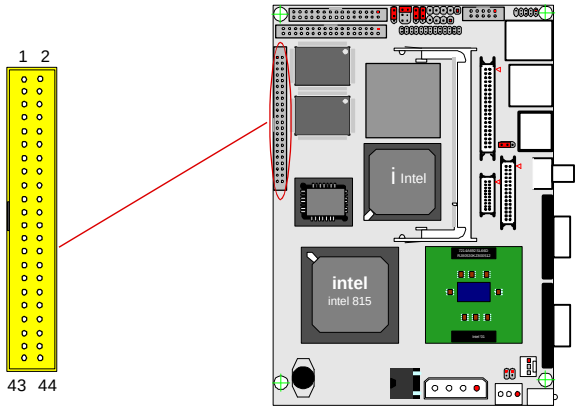
Mode	LED Description
Active Transfer	**Yellow LED ON (flash)**
10 MB mode	**Green LED OFF**
100MB mode	**Green LED ON**



IDE Connector

Connector : **IDE1**
Type : One onboard 44-pin box headers, primary IDE

Pin	Description	Pin	Description
1	#RESET	2	GND
3	D7	4	D8
5	D6	6	D9
7	D5	8	D10
9	D4	10	D11
11	D3	12	D12
13	D2	14	D13
15	D1	16	D14
17	D0	18	D15
19	GND	20	NC
21	REQ	22	GND
23	#IOW	24	GND
25	#IOR	26	GND
27	#IORDY	28	IDESEL
29	#DACK	30	GND
31	IRQ	32	NC (-IOCS16)
33	ADDR1	34	CBLID
35	ADDR0	36	ADDR2
37	#CS0	38	#CS1(#HD SELET1)
39	#ACT	40	GND
41	Vcc	42	Vcc
43	GND	44	NC

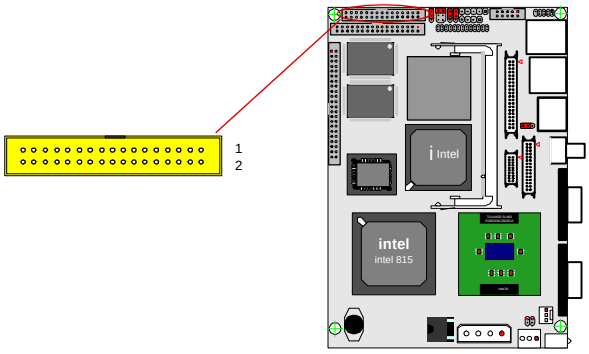


Interface Connectors HDD, FDD

Floppy Disk Drive Connector

Connector : **FDD1**
Type : onboard 34-pin box header

Pin	Description	Pin	Description
1	GND	2	DRIVE DENSITY SELECT 0
3	GND	4	NC
5	GND	6	DRIVE DENSITY SELECT 1
7	GND	8	#INDEX
9	GND	10	#MOTOR ENABLE A
11	GND	12	#DRIVER SELECT B
13	GND	14	#DRIVER SELECT A
15	GND	16	#MOTOR ENABLE B
17	GND	18	#DIRECTION
19	GND	20	#STEP
21	GND	22	#WRITE DATA
23	GND	24	#WRITE GATE
25	GND	26	#TRACK 0
27	GND	28	#WRITE PROTECT
29	GND	30	#READ DATA
31	GND	32	#HEAD SELECT
33	GND	34	#DISK CHANGE



System Resources

Interrupt Request (IRQ)

IRQ Address	Description
0	System timer
1	Standard 101/102-Key or Microsoft Natural Keyboard
2	Programmable interrupt controller
3	Communications Port (COM2)
4	Communications Port (COM1)
5	IRQ Holder for PCI Steering
5	Realtek AC'97 Audio
5	Intel(R) PRO/100 VE Network Connection
5	Intel(R) 82801BA/BAM USB Universal Host Controller - 2442
5	Intel(R) 82801BA/BAM SMBus Controller - 2443
6	Standard Floppy Disk Controller
7	Printer Port (LPT1)
8	System CMOS/real time clock
9	Intel(R) 82815 Graphics Controller
9	Intel(R) 82801BA/BAM USB Universal Host Controller - 2444
9	IRQ Holder for PCI Steering
10	Communications Port (COM3)
11	Communications Port (COM4)
12	PS/2 Compatible Mouse Port
13	Numeric data processor
14	Primary Ultra ATA Controller
14	Intel(R) 82801BA Ultra ATA Storage Controller - 244B
15	Secondary Ultra ATA Controller
15	Intel(R) 82801BA Ultra ATA Storage Controller - 244B

Direct Memory Access (DMA)

DMA	Description
2	Standard Floppy Disk Controller
4	Direct memory access controller

Ports Input/Output (IO)

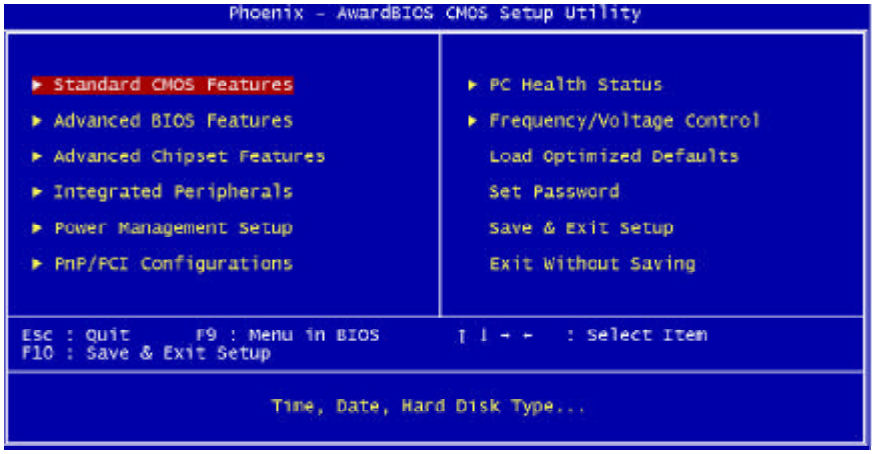
I/O Address	Description
0020 - 0021	Programmable interrupt controller
0040 - 0043	System timer
0060 - 0060	Standard 101/102
0061 - 0061	System speaker
0064 - 0064	Standard 101/102
0070 - 0071	System CMOS/real time clock
0081 - 0083	Direct memory access controller
0087 - 0087	Direct memory access controller
0089 - 008B	Direct memory access controller
008F - 0091	Direct memory access controller
00A0 - 00A1	Programmable interrupt controller
00C0 - 00DF	Direct memory access controller
00F0 - 00FF	Numeric data processor
0170 - 0177	Intel(R) 82801BA Ultra ATA Storage Controller
0170 - 0177	Secondary Ultra ATA Controller
01F0 - 01F7	Intel(R) 82801BA Ultra ATA Storage Controller
01F0 - 01F7	Primary Ultra ATA Controller
02E8 - 02EF	Communications Port (COM4)
02F8 - 02FF	Communications Port (COM2)
0000 - 000F	Direct memory access controller
0376 - 0376	Intel(R) 82801BA Ultra ATA Storage Controller
0376 - 0376	Secondary Ultra ATA Controller
0378 - 037F	Printer Port (LPT1)
03B0 - 03BB	Intel(R) 82815 Graphics Controller
03C0 - 03DF	Intel(R) 82815 Graphics Controller
03E8 - 03EF	Communications Port (COM3)
03F0 - 03F5	Standard Floppy Disk Controller
03F6 - 03F6	Intel(R) 82801BA Ultra ATA Storage Controller
03F6 - 03F6	Primary Ultra ATA Controller
03F7 - 03F7	Standard Floppy Disk Controller
03F8 - 03FF	Communications Port (COM1)
0400 - 04BF	PCI bus
04D0 - 04D1	PCI bus
0500 - 050F	Intel(R) 82801BA/BAM SMBus Controller
0778 - 077B	Printer Port (LPT1)
0CF8 -0CFF	PCI bus
C000 - C03F	Intel(R) PRO/100 VE Network Connection

C000 - CFFF	Intel(R) 82801BA PCI Bridge
D000 - D01F	Intel(R) 82801BA/BAM USB Universal Host Controller
D800 - D81F	Intel(R) 82801BA/BAM USB Universal Host Controller
DC00 - DCFF	Realtek AC 97 Audio
E000 - E03F	Realtek AC 97 Audio
F000 - F00F	Intel(R) 82801BA Ultra ATA Storage Controller
F000 - F007	Primary Ultra ATA Controller
F008 - F00F	Secondary Ultra ATA Controller

AWARD BIOS Setup

The SBC uses the Award PCI/ISA BIOS ver 6.0 for the system configuration. The Award BIOS setup program is designed to provide the maximum flexibility in configuring the system by offering various options which could be selected for end-user requirements. This chapter is written to assist you in the proper usage of these features.

To access AWARD PCI/ISA BIOS Setup program, press <Del> key. The Main Menu will be displayed at this time.



Once you enter the AwardBIOS™ CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

Setup Items

The main menu includes the following main setup categories. Recall that some systems may not include all entries.

Standard CMOS Features
Use this menu for basic system configuration.

Advanced BIOS Features
Use this menu to set the Advanced Features available on your system.

Advanced Chipset Features
Use this menu to change the values in the chipset registers and optimize your system's performance.

Integrated Peripherals
Use this menu to specify your settings for integrated peripherals.

Power Management Setup
Use this menu to specify your settings for power management.

PnP / PCI Configuration
This entry appears if your system supports PnP / PCI.

PC Health Status
This entry helps you to monitor the status of PC.

Frequency/Voltage Control
Use this menu to specify your settings for frequency/voltage control.

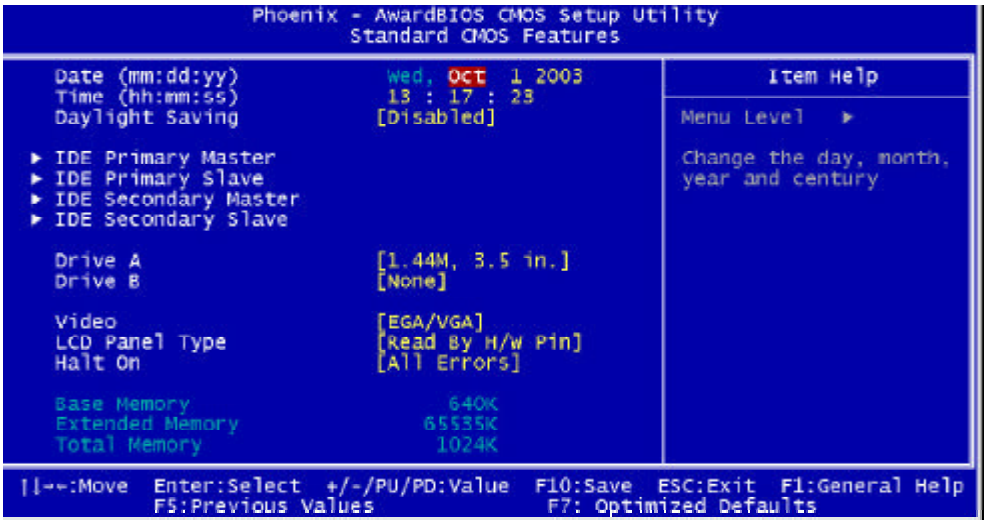
Load Optimized Defaults
Use this menu to load the BIOS default values that are factory settings for optimal performance system operations. While Award has designed the custom BIOS to maximize performance, the factory has the right to change these defaults to meet their needs.

Set Password
Use this menu to set User and Supervisor Passwords.

Save & Exit Setup
Save CMOS value changes to CMOS and exit setup.

Exit Without Save
Abandon all CMOS value changes and exit setup.

Standard CMOS Setup


Phoenix - AwardBIOS CMOS Setup Utility
Standard CMOS Features
Date (mm:dd:yy) Wed, Oct 1 2003
Time (hh:mm:ss) 13 : 17 : 23
Daylight Saving [Disabled]
IDE Primary Master
IDE Primary Slave
IDE Secondary Master
IDE Secondary Slave
Drive A [1.44M, 3.5 in.]
Drive B [None]
Video [EGA/VGA]
LCD Panel Type [Read By H/W Pin]
Halt On [All Errors]
Base Memory 640K
Extended Memory 65535K
Total Memory 1024K
Item Help
Menu Level ▶
Change the day, month, year and century
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F7: Optimized Defaults

- ¯ ® ¬ :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-SAfe Defaults F7:Optimized Defaults

Date
The BIOS determines the day of the week from the other date information; this field is for information only.

Time
The time format is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Press the « or (key to move to the desired field . Press the PgUp or PgDn key to increment the setting, or type the desired value into the field.

IDE Primary Master/Slave
IDE Secondary Master/Slave
Options are in sub menu (see page 30)

Drive A, B
Select the correct specifications for the diskette drive(s) installed in the computer.

None : No diskette drive installed
360K ; 5.25 in 5-1/4 inch PC-type standard drive
1.2M ; 5.25 in 5-1/4 inch AT-type high-density drive
720K ; 3.5 in 3-1/2 inch double-sided drive
1.44M ; 3.5 in 3-1/2 inch double-sided drive
2.88M ; 3.5 in 3-1/2 inch double-sided drive

Video Select the type of primary video subsystem in your computer. The BIOS usually detects the correct video type automatically. The BIOS supports a secondary video subsystem, but you do not select it in Setup.

LCD Panel Type Select the type of LCD.

Halt On During the power-on self-test (POST), the computer stops if the BIOS detects a hardware error. You can tell the BIOS to ignore certain errors during POST and continue the boot-up process. These are the selections:

No errors	POST does not stop for any errors.
All errors	If the BIOS detects any non-fatal error, POST stops and prompts you to take corrective action.
All, But Keyboard	POST does not stop for a keyboard error, but stops for all other errors.
All, But Diskette	POST does not stop for diskette drive errors, but stops for all other errors.
All, But Disk/Key	POST does not stop for a keyboard or disk error, but stops for all other errors.

BIOS Features Setup

Phoenix - AwardBIOS CMOS Setup Utility
Advanced BIOS Features
Virus Warning [Disabled]
CPU Internal Cache [Enabled]
External Cache [Enabled]
CPU L2 Cache ECC Checking [Enabled]
Processor Number Feature [Enabled]
Quick Power On Self Test [Enabled]
First Boot Device [HDD-0]
Second Boot Device [HDD-1]
Third Boot Device [Floppy]
Boot Other Device [Enabled]
Swap Floppy Drive [Disabled]
Boot Up Floppy Seek [Enabled]
Boot Up NumLock Status [On]
Gate A20 Option [Fast]
Typematic Rate Setting [Disabled]
x Typematic Rate (Chars/Sec) 6
x Typematic Delay (Msec) 250
Security Option [Setup]
APIC Mode [Disabled]
x MPS Version Control For OS 1.4
OS Select For DRAM > 64MB [Non-OS2]
Console Redirection [Disabled]
x Baud Rate 19200
x Agent Connect via NULL
x Agent wait time(min) 1
x Agent after boot Disabled
C8000-CBFFF Shadow [Enabled]
CC000-CFFFF Shadow [Disabled]
D0000-D3FFF Shadow [Disabled]
D4000-D7FFF Shadow [Disabled]
D8000-DBFFF Shadow [Disabled]
DC000-DFFFF Shadow [Disabled]
Small Logo(EPA) Show [Enabled]
EEPROM Write Protect [Enabled]
Item Help
Menu Level ▶
Allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area , BIOS will show a warning message on screen and alarm beep
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F7: Optimized Defaults

- ¯ ® ¬ :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-SAfe Defaults F7:Optimized Defaults

Virus Warning
Allows you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and beep.

Enabled Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table.

Disabled No warning message will appear when anything attempts to access the boot sector or hard disk partition table.

CPU Internal Cache/External Cache
These two categories speed up memory access. However, it depends on CPU/chipset design. Enabled : Enable cache, Disabled : Disable cache

CPU L2 Cache ECC Checking
This item allows you to enable/disable CPU L2 Cache ECC checking.
The choice: Enabled, Disabled.

Processor Number Feature
This feature appears when a a Pentium III processor is installed. It enables you enables you to control whether the Pentium III's serial number can be read by external programs. The choice : Enabled. Disabled

Quick Power On Self Test
This category speeds up Power On Self Test (POST) after you power up the computer. If it is set to Enable, BIOS will shorten or skip some check items during POST. Enabled : Enable quick POST. Disabled : Normal POST

First/Second/Third/Other Boot Device
The BIOS attempts to load the operating system from the devices in the sequence selected in these items. The choices are : Floppy, LS/ZIP, HDD, SCSI, CDROM, Disabled.

Swap Floppy Drive
If the system has two floppy drives, you can swap the logical drive name assignments. The choice: Enabled/Disabled.

Boot Up Floppy Seek
Seeks disk drives during boot up. Disabling speeds boot up.
The choice: Enabled/Disabled.

Boot Up NumLock Status
Select power on state for NumLock. The choice: Enabled/Disabled.

Gate A20 Option
Select if chipset or keyboard controller should control GateA20.
Normal A pin in the keyboard controller controls GateA20
Fast Lets chipset control GateA20

Typematic Rate Setting
Key strokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected.
The choice: Enabled/Disabled.

Security Option
Select whether the password is required every time the system boots or only when you enter setup.

System The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.

Setup The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

Note To disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter password. Do not type anything and just press <Enter>, it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.

APIC Mode
Select

OS Select For DRAM > 64MB
Select the operating system that is running with greater than 64MB of RAM on the system.The choice: Non-OS2, OS2.

Console Redirection
Console Redirection capability allows a system with no keyboard and no video hardware to transmit video and keyboard data to a host system via the serial port.

Video BIOS Shadow
Enabled this copies the video BIOS from ROM to RAM. effectively enhancing performance, and reducing the amount of upper memory available by 32KB (the C0000~C7FFF area of memory between 640 KB and 1 MB is used).

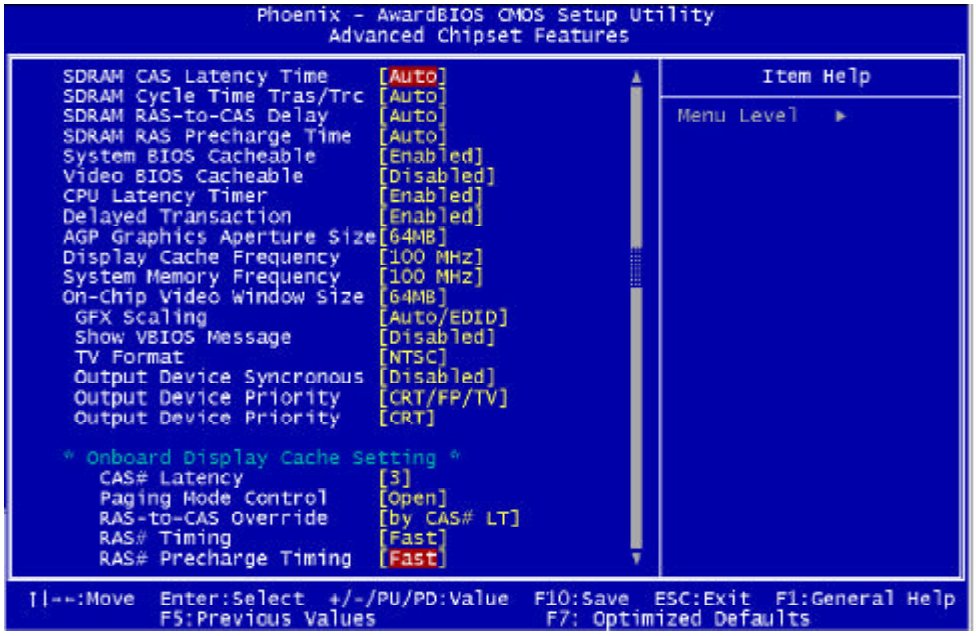
C8000-CBFFF Shadow
Enabling any of the C8000~CBFFF segments allows components to move their firmware into these upper memory segments. However your computer can lock-up doing so, because some devices don't like being shadowed at those particular 16 KB segments of upper memory.

Small Logo(EPA) Show
[Enabled]: If you want to show your logo, please enable it.
[Disabled]: When this item disabled, logo(EPA) will not show on screen.

EEPROM Write Protect
All the configuration data is stored in a type of nonvolatile memor chip called an EEPROM. When it's enabled, it disables all writes to the configuration EEPROM. This locks your current configuration against accidenatal or unauthorized changes.

Note - In Windows 95, double click 'Computer' within Device Manager and select 'Memory'. This will tell you what segments (if any) are being shadowed For DOS you can use MSD.EXE to see what segments are claimed. CC000-CFFFF - D0000-D3FFF - D4000-D7FFF - D8000-DBFFF and DC000-DFFFF - Same as above.

Chipset Features Setup


Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features
SDRAM CAS Latency Time [Auto]
SDRAM Cycle Time Tras/Trc [Auto]
SDRAM RAS-to-CAS Delay [Auto]
SDRAM RAS Precharge Time [Auto]
System BIOS Cacheable [Enabled]
Video BIOS Cacheable [Disabled]
CPU Latency Timer [Enabled]
Delayed Transaction [Enabled]
AGP Graphics Aperture Size [64MB]
Display Cache Frequency [100 MHz]
System Memory Frequency [100 MHz]
On-Chip Video Window Size [64MB]
GFX Scaling [Auto/EDID]
Show VBIOS Message [Disabled]
TV Format [NTSC]
Output Device Syncronous [Disabled]
Output Device Priority [CRT/FP/TV]
Output Device Priority [CRT]
* Onboard Display Cache Setting *
CAS# Latency [3]
Paging Mode Control [Open]
RAS-to-CAS Override [by CAS# LT]
RAS# Timing [Fast]
RAS# Precharge Timing [Fast]
Item Help
Menu Level ▶
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F7: Optimized Defaults

DRAM Settings
The first chipset settings deal with CPU access to dynamic random access memory (DRAM). The default timings have been carefully chosen and should only be altered if data is being lost. Such a scenario might well occur if your system had mixed speed DRAM chips installed so that greater delays may be required to preserve the integrity of the data held in the slower memory chips.

SDRAM CAS Latency Time
When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing.

SDRAM Cycle Time Tras/Trc
Select the number of SCLKs for an access cycle

SDRAM RAS-to-CAS Delay
This field let's you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. Fast gives faster performance; and Slow gives more stable performance. This field applies only when synchronous DRAM is installed in the system.

SDRAM RAS Precharge Time
If an insufficient number of cycles is allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be incomplete and the DRAM may fail to retain data. Fast gives faster performance; and Slow givesmore stable performance. This field applies only when synchronous DRAM is installed in the system.

System BIOS Cacheable
Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

Video BIOS Cacheable
Select Enabled allows caching of the video BIOS, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

CPU latency Timer
When enabled this item, the CPU cycle will only be deferred after it has been held in a "Snoop Stall" for 31 clocks and another ADS# has arrived. When disabled, the CPU cycle will be deferred immediatedly after the GMCH receives another ADS#.

Delayed Transaction
The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select Enabled to support compliance with PCI specification version 2.1

AGP Graphics Aperture Size
This fielf determines the effective size of the Graphic Aperture used for a particular GMCH configuration. It can be updated by the GMCH-specific BIOS configuration sequence before the PCI standard bus enumeration sequence takes place. If it is not updated then a default value will select an aperture of maximum size.

Display Cache Frequency
You can use this item to select the frequency of the display cache.

System Memory Frequency
You can use this item to select the operating frequency for the main system.

On-Chip Video Window Size
Select the on-chip video window size for VGA drives use.

Onboard Display Cache Setting
Setting the onboard display cache timing

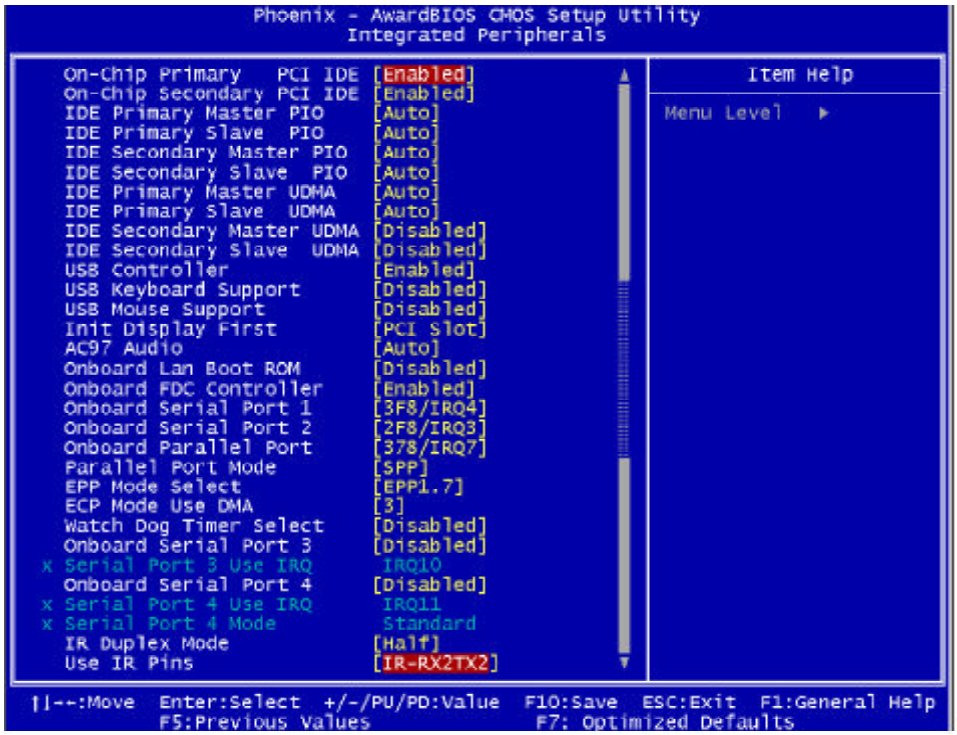
CAS#Latency
Select the local memory clock periods

Paging Mode Control
Select the paging mode control

RAS-to-CAS Override
Select the display cache clock periods control

RAS# Timing
This item controls RAS# active to Protegra, and refresh to RAS# active delay (in local memory clocks).

RAS# Precharge Timing
This item controls RAS# precharge (in local memory clocks).


Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals
On-Chip Primary PCI IDE [Enabled]
On-Chip Secondary PCI IDE [Enabled]
IDE Primary Master PIO [Auto]
IDE Primary Slave PIO [Auto]
IDE Secondary Master PIO [Auto]
IDE Secondary Slave PIO [Auto]
IDE Primary Master UDMA [Auto]
IDE Primary Slave UDMA [Auto]
IDE Secondary Master UDMA [Disabled]
IDE Secondary Slave UDMA [Disabled]
USB Controller [Enabled]
USB Keyboard Support [Disabled]
USB Mouse Support [Disabled]
Init Display First [PCI Slot]
AC97 Audio [Auto]
Onboard Lan Boot ROM [Disabled]
Onboard FDC Controller [Enabled]
Onboard Serial Port 1 [3F8/IRQ4]
Onboard Serial Port 2 [2F8/IRQ3]
Onboard Parallel Port [378/IRQ7]
Parallel Port Mode [SPP]
EPP Mode Select [EPP1.7]
ECP Mode Use DMA [3]
Watch Dog Timer Select [Disabled]
Onboard Serial Port 3 [Disabled]
x Serial Port 3 Use IRQ IRQ10
Onboard Serial Port 4 [Disabled]
x Serial Port 4 Use IRQ IRQ11
x Serial Port 4 Mode Standard
IR Duplex Mode [Half]
Use IR Pins [IR-RX2TX2]
Item Help
Menu Level ▶
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F7: Optimized Defaults

- ¯ ® ¬ :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-SAfe Defaults F7:Optimized Defaults

OnChip Primary/Secondary PCI IDE
The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select Enabled to activate each channel separately.

Primary & Secondary Master/Slave PIO
These four PIO fields let you set a PIO mode (0-4) for each of four IDE devices. When under "Auto" mode, the system automatically set the best mode for each device

Primary & Secondary Master/Slave UDMA
When set to "Auto" mode, the system will detect if the hard drive supports

Ultra DMA mode.

USB Controller
Select "Enable" if your system contains a Universal Serial Bus (USB) controller and you have USB peripherals.

USB Keyboard Support
Select "Enable" if your system contains a Universal Serial Bus (USB) controller and you have USB keyboard.

Init Display First
This item allows you to decide to activate whether PCI slot or on-chip VGA first

AC97 Audio
AC97 Audio selection.

Onboard LAN Boot ROM
The default setting is "Disabled" that to shorten the booting time.

Onboard FDC Controller
Select "Enabled" to activate the on-board FDD
Select "Disabled" to activate an add-on FDD

Onboard Serial Port 1 & 2
Select an address and corresponding interrupt for the first/second serial port. The default value for the first serial port is "3F8/IRQ4" and the second serial port is "2F8/IRQ3".

Onboard Parallel Port Port
Select an address and corresponding interrupt for the parallel port.

EPP Mode Select
You can use this feature to choose which version of EPP to use. For better performance, use EPP 1.9. But if you are facing connection issues, try setting it to EPP 1.7. Most of the time, EPP 1.9 will work perfectly well.

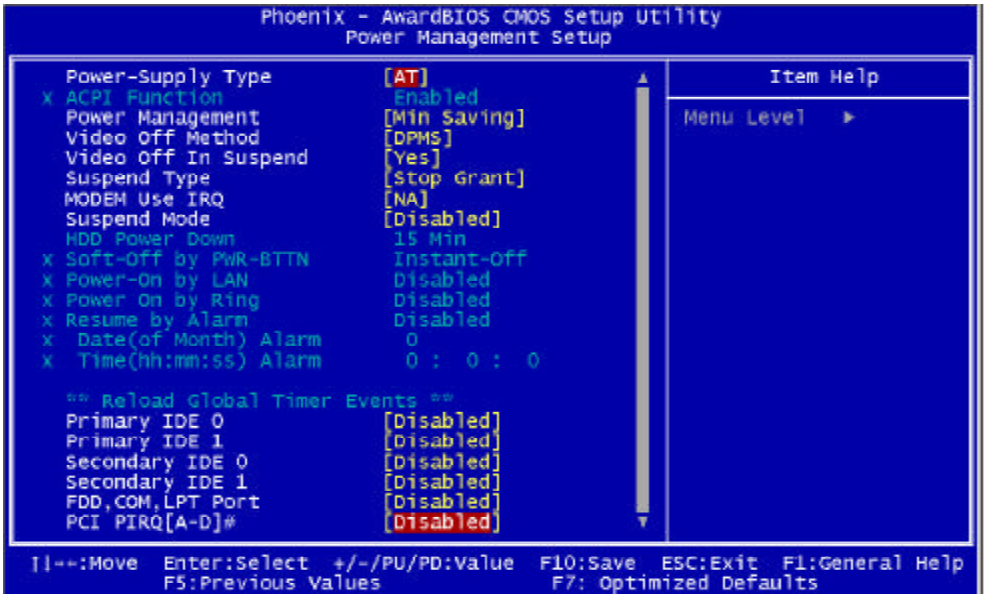
ECP Mode Use DMA
By default, the parallel port uses DMA Channel 3 when it is in ECP mode. This works fine in most situations.

Watch Dog Timer Select
The system board supports the Watchdog Timer function allowing your application to regularly clear the system at the set time interval. If the system hangs or fails to function, it will reset at the set time interval so that your system will continue to operate. You may set the time interval in 10s, 20s, 30s, 40s, 1 Min, 2 Min, 4 Min or Disabled.

IR2 Duplex Mode
This item allows you to select the IR half/full duplex function.

Use IR Pins
This item allows you to select IR transmission routes, IR-Rx2Tx2, RxD2 and TxD2.

Power Management Setup


Phoenix - AwardBIOS CMOS Setup Utility
Power Management Setup
Power-Supply Type [AT]
x ACPI Function Enabled
Power Management [Min Saving]
Video Off Method [DPMS]
Video Off In Suspend [Yes]
Suspend Type [Stop Grant]
MODEM Use IRQ [NA]
Suspend Mode [Disabled]
HDD Power Down 15 Min
x Soft-Off by PWR-BTTN Instant-Off
x Power-On by LAN Disabled
x Power On by Ring Disabled
x Resume by Alarm Disabled
x Date(of Month) Alarm 0
x Time(hh:mm:ss) Alarm 0 : 0 : 0
** Reload Global Timer Events **
Primary IDE 0 [Disabled]
Primary IDE 1 [Disabled]
Secondary IDE 0 [Disabled]
Secondary IDE 1 [Disabled]
FDD,COM,LPT Port [Disabled]
PCI PIRQ[A-D]# [Disabled]
Item Help
Menu Level ▶
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F7: Optimized Defaults

-¯®¬:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-SAfe Defaults F7:Optimized Defaults

ACPI Function
Select Enabled only if your computer's operating system supports ACPI (the Advanced Configuration and Power Interface) specification. Currently, Windows 98 and Windows2000 support ACPI.

Power Management
There are 4 selections for Power Management, 3 of which have fixed mode :

Disabled (default)	No power management. Disables all four modes.
Min. Power Saving	Minimum power management. Doze Mode = 1 hr., Standby Mode = 1 hr., Suspend Mode = 1 hr.,
Max. Power Saving	Maximum power management -- ONLY AVAILABLE FOR SL CPU's.. Doze Mode = 1 min., Standby Mode = 1 min., Suspend Mode = 1 min.
User Defined	Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr.

Video Off Method
This determines the manner in which the monitor is blanked.

V/H SYNC+Blank	cause the system to turn off the vertical and horizontal synchronization signals and writes blanks to the screen.
Blank Screen	This option only writes blanks to the screen.
DPMS	Initial display power management signaling.HDD Power Down is always set independently

Video Off In Suspend

Controls what causes the display to be switched off
Suspend -> Off Always On All Mode -> Off

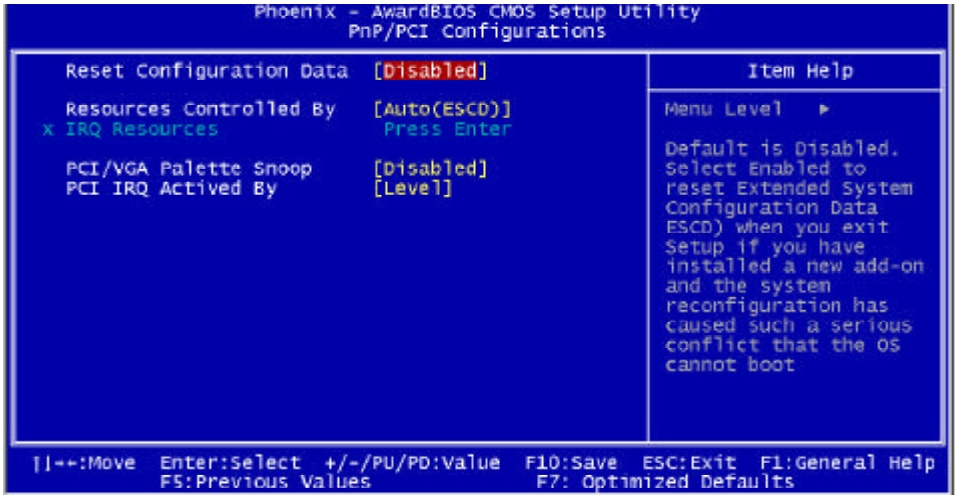
Suspend Type
S1 (POS) Power On suspend
All devices are powered up except for the clock synthesizer. The Host and PCI clocks are inactive and PIIX4 provides control signals and 32-kHz Suspend Clock (SUSCLK) to allow for DRAM refresh and to turn off the clock synthesizer. The only power consumed in the system is due to DRAM Refresh and leakage current of the powered devices. When the system resumes from POS, PIIX4 can optionally resume without resetting the system, can reset the processor only, or can reset the entire system. When no reset is performed, PIIX4 only needs to wait for the clock synthesizer and processor PLLs to lock before the system is resumed. This takes typically 20 ms.

S3 (STR) Suspend To RAM
Power is removed from most of the system components during STR, except the DRAM. Power is supplied to Suspend Refresh logic in the Host Controller, and RTC and Suspend Well logic in PIIX4. PIIX4 provides control signals and 32-kHz Suspend Clock (SUSCLK) to allow for DRAM refresh and to turn off the clock synthesizer and other power planes.

Modem Use IRQ
Name the interrupt request (IRQ) assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system.

Suspend Mode
When the suspend mode has been enabled after the selected period of system inactivity, all devices except CPU will be shut down.

PnP/PCI Configuration


Phoenix - AwardBIOS CMOS Setup Utility
PnP/PCI Configurations
Reset Configuration Data [Disabled]
Resources Controlled By [Auto(ESCD)]
x IRQ Resources Press Enter
PCI/VGA Palette Snoop [Disabled]
PCI IRQ Actived By [Level]
Item Help
Menu Level ▶
Default is Disabled. Select Enabled to reset Extended System Configuration Data ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F7: Optimized Defaults

```
- ¯ ® ¬ :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values  F6:Fail-SAfe Defaults  F7:Optimized Defaults
```

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components.

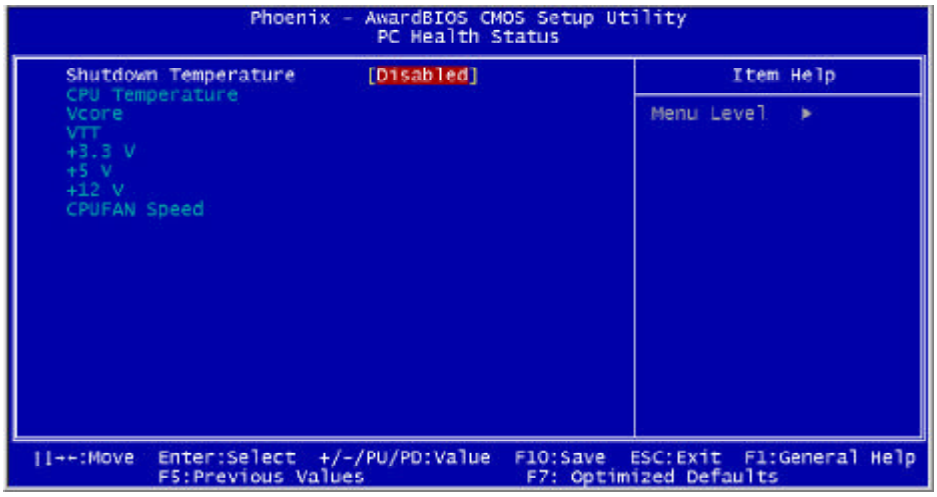
Reset Configuration Data
Normally, you leave this field Disabled. Select Enabled to reset ESCD (Extended System Configuration Date) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system cannot boot.

Resource Controlled By
The Award Play and Play BIOS can automatically configure all the boot and Plug-and-Play compatible devices. If you select Auto, all the interrupt request (IRQ) and DMA assignment fields disappear, as the BIOS automatically assigns them.

PCI/VGA Palette Snoop
Normally this option is always Disabled! Nonstandard VGA display adapters such as overlay cards or MPEG video cards may not show colors properly. Setting Enabled should correct this problem. If this field set Enabled, any I/O access on the ISA bus to the VGA card's palette registers will be reflected on the PCI bus. This will allow overlay cards to adapt to the changing palette colors.

PCI IRQ Actived by
[Level]

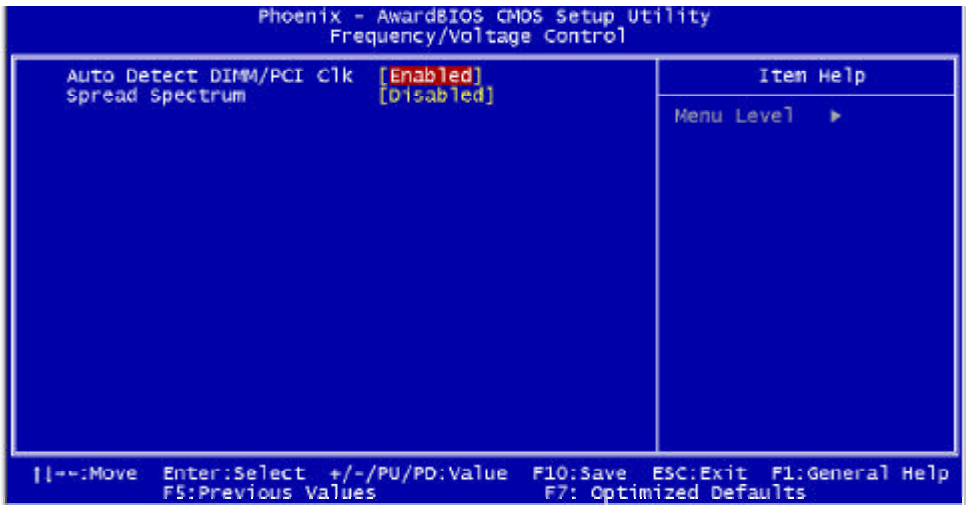
PC Health Status



This section describes CPU tempeare for the system.

Shutdown Temperature
This item allows you to set up the CPU shutdowm Temperature. This item only effective under Windows 98 ACPI mode.

Frequency/Voltage Control


Phoenix - AwardBIOS CMOS Setup Utility
Frequency/Voltage Control
Auto Detect DIMM/PCI Clk [Enabled]
Spread Spectrum [Disabled]
Item Help
Menu Level ▶
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F7: Optimized Defaults

This section describes Frequency and Voltage control for the system.

Auto Detect DIMM/PCI CLK
When enabled, this item will auto detect if the DIMM and PCI socket have devices and will send clock signal to DIMM and PCI devices. When disabled, it will send the clock signal to all DIMM and PCI socket.

Spread Spectrum
This item allows you to enable/disable the spread spectrum modulate.

POST Codes

The following codes are not displayed on the screen. They can only be viewed on the LED display of a so called POST card. The codes are listened in the same order as the according functions are executed at PC startup. If you have access to a POST Card reader, you can watch the system perform each test by the value that's displayed. If the system hangs (if there's a problem) the last value displayed will give you a good idea where and what went wrong, or what's bad on the system board.

CODE	DESCRIPTION OF CHECK
CFh	Test CMOS R/W functionality.
C0h	Early chipset initialization: -Disable shadow RAM -Disable L2 cache (socket 7 or below) -Program basic chipset registers
C1h	Detect memory -Auto-detection of DRAM size, type and ECC. -Auto-detection of L2 cache (socket 7 or below)
C3h	Expand compressed BIOS code to DRAM
C5h	Call chipset hook to copy BIOS back to E000 & F000 shadow RAM.
0h1	Expand the Xgroup codes locating in physical address 1000:0
02h	Reserved
03h	Initial Superio_Early_Init switch.
04h	Reserved
05h	1. Blank out screen 2. Clear CMOS error flag
06h	Reserved
07h	1. Clear 8042 interface 2. Initialize 8042 self-test
08h	1. Test special keyboard controller for Winbond 977 series Super I/O chips. 2. Enable keyboard interface.
09h	Reserved
0Ah	1. Disable PS/2 mouse interface (optional). 2. Auto detect ports for keyboard & mouse followed by a port & interface swap (optional). 3. Reset keyboard for Winbond 977 series Super I/O chips.
0Bh	Reserved
0Ch	Reserved

0Dh	Reserved
0Eh	Test F000h segment shadow to see whether it is R/W-able or not. If test fails, keep beeping the speaker.
0Fh	Reserved
10h	Auto detect flash type to load appropriate flash R/W codes into the run time area in F000 for ESCD & DMI support.
11h	Reserved
12h	Use walking 1's algorithm to check out interface in CMOS circuitry. Also set real-time clock power status, and then check for override.
13h	Reserved
14h	Program chipset default values into chipset. Chipset default values are MODBINable by OEM customers.
15h	Reserved
16h	Initial onboard clock generator if Early_Init_Onboard_Generator is defined. See also POST 26h.
17h	Reserved
18h	Detect CPU information including brand, SMI type (Cyrix or Intel) and CPU level (586 or 686).
19h	Reserved
1Ah	Reserved
1Bh	Initial interrupts vector table. If no special specified, all H/W interrupts are directed to SPURIOUS_INT_HDLR & S/W interrupts to SPURIOUS_soft_HDLR.
1Ch	Reserved
1Dh	Initial EARLY_PM_INIT switch.
1Eh	Reserved
1Fh	Load keyboard matrix (notebook platform)
20h	Reserved
21h	HPM initialization (notebook platform)
22h	Reserved
23h	1. Check validity of RTC value: e.g. a value of 5Ah is an invalid value for RTC minute. 2. Load CMOS settings into BIOS stack. If CMOS checksum fails, use default value instead.
24h	Prepare BIOS resource map for PCI & PnP use. If ESCD is valid, take into consideration of the ESCD's legacy information.

25h	Early PCI Initialization: -Enumerate PCI bus number. -Assign memory & I/O resource -Search for a valid VGA device & VGA BIOS, and put it into C000:0
26h	1. If Early_Init_Onboard_Generator is not defined Onboard clock generator initialization. Disable respective clock resource to empty PCI & DIMM slots. 2. Init onboard PWM 3. Init onboard H/W monitor devices
27h	Initialize INT 09 buffer
28h	Reserved
29h	1. Program CPU internal MTRR (P6 & PII) for 0-640K memory address. 2. Initialize the APIC for Pentium class CPU. 3. Program early chipset according to CMOS setup. Example: onboard IDE controller. 4. Measure CPU speed.
2Ah	Reserved
2Bh	Invoke Video BIOS
2Ch	Reserved
2Dh	1. Initialize double-byte language font (Optional) 2. Put information on screen display, including Award title, CPU type, CPU speed, full screen logo.
2Eh	Reserved
2Fh	Reserved
30h	Reserved
31h	Reserved
32h	Reserved
33h	Reset keyboard if Early_Reset_KB is defined e.g. Winbond 977 series Super I/O chips. See also POST 63h.
34h	Reserved
35h	Test DMA Channel 0
36h	Reserved
37h	Test DMA Channel 1.
38h	Reserved
39h	Test DMA page registers.
3Ah	Reserved
3Bh	Reserved

3Ch	Test 8254
3Dh	Reserved
3Eh	Test 8259 interrupt mask bits for channel 1.
3Fh	Reserved
40h	Test 8259 interrupt mask bits for channel 2.
41h	Reserved
42h	Reserved
43h	Test 8259 functionality.
44h	Reserved
45h	Reserved
46h	Reserved
47h	Initialize EISA slot
48h	Reserved
49h	1. Calculate total memory by testing the last double word of each 64K page. 2. Program write allocation for AMD K5 CPU.
4Ah	Reserved
4Bh	Reserved
4Ch	Reserved
4Dh	Reserved
4Eh	1. Program MTRR of M1 CPU 2. Initialize L2 cache for P6 class CPU & program CPU with proper cacheable range. 3. Initialize the APIC for P6 class CPU. 4. On MP platform, adjust the cacheable range to smaller one in case the cacheable ranges between each CPU are not identical.
4Fh	Reserved
50h	Initialize USB Keyboard & Mouse.
51h	Reserved
52h	Test all memory (clear all extended memory to 0)
53h	Clear password according to H/W jumper (Optional)
54h	Reserved
55h	Display number of processors (multi-processor platform)
56h	Reserved

57h	1. Display PnP logo 2. Early ISA PnP initialization -Assign CSN to every ISA PnP device.
58h	Reserved
59h	Initialize the combined Trend Anti-Virus code.
5Ah	Reserved
5Bh	(Optional Feature) Show message for entering AWDFLASH.EXE from FDD (optional)
5Ch	Reserved
5Dh	1. Initialize Init_Onboard_Super_IO 2. Initialize Init_Onbaord_AUDIO.
5Eh	Reserved
5Fh	Reserved
60h	Okay to enter Setup utility; i.e. not until this POST stage can users enter the CMOS setup utility.
61h	Reserved
62h	Reserved
63h	Reset keyboard if Early_Reset_KB is not defined.
64h	Reserved
65h	Initialize PS/2 Mouse
66h	Reserved
67h	Prepare memory size information for function call: INT 15h ax=E820h
68h	Reserved
69h	Turn on L2 cache
6Ah	Reserved
6Bh	Program chipset registers according to items described in Setup & Auto-configuration table.
6Ch	Reserved
6Dh	1. Assign resources to all ISA PnP devices. 2. Auto assign ports to onboard COM ports if the corresponding item in Setup is set to "AUTO".
6Eh	Reserved
6Fh	1. Initialize floppy controller 2. Set up floppy related fields in 40:hardware.
70h	Reserved

71h	Reserved
72h	Reserved
73h	(Reserved
74h	Reserved
75h	Detect & install all IDE devices: HDD, LS120, ZIP, CDROM…..
76h	(Optional Feature) Enter AWDFLASH.EXE if: -AWDFLASH.EXE is found in floppy drive. -ALT+F2 is pressed.
77h	Detect serial ports & parallel ports.
78h	Reserved
79h	Reserved
7Ah	Detect & install co-processor
7Bh	Reserved
7Ch	Init HDD write protect.
7Dh	Reserved
7Eh	Reserved
7Fh	Switch back to text mode if full screen logo is supported. - If errors occur, report errors & wait for keys - If no errors occur or F1 key is pressed to continue : wClear EPA or customization logo.
80h	Reserved
81h	Reserved

E8POST.ASM starts

82h	1. Call chipset power management hook. 2. Recover the text fond used by EPA logo (not for full screen logo) 3. If password is set, ask for password.
83h	Save all data in stack back to CMOS
84h	Initialize ISA PnP boot devices
85h	1. USB final Initialization 2. Switch screen back to text mode
86h	Reserved
87h	NET PC: Build SYSID Structure.
88h	Reserved